

THE ROLE OF ANXIETY IN GOLF PUTTING PERFORMANCE

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INTRODUCTION: Anxiety's influence on performance continues to be one of the main research interests for sport psychologists (Hanin, 2000). It is apparent, though, that there is a lack of empirical research characterising the multi-disciplinary effect of anxiety on sports performance. The current study aimed to ascertain biomechanical (accuracy, movement variability) and psychological (anxiety) markers to determine how anxiety affects golf putting.

METHOD: 22 healthy subjects (12 male, 10 female, 21.7±2.0 yrs, 175.3±8.1 cm, 76.4±10.0 kg, all data mean±SD) who had played golf recreationally previously but with no recorded handicap were recruited. Subjects performed thirty 3.05 m putts using their own putter under a control and anxiety condition. Anxiety was elevated using environmental cues (e.g. presence of spectators) and a competition scenario. Three-dimensional motion was tracked using a six camera Motion AnalysisTM system operating at 240 Hz. Final ball position from the hole was ascertained using overhead digital photogrammetry. Self reported anxiety was measured pre, during and post putting using standardised self-report anxiety questionnaires. The Competitive State Anxiety Inventory (CSAI) was used to measure state anxiety intensity and direction across three sub scales (i.e. cognitive anxiety, somatic anxiety and self-confidence). The shorter Mental Readiness Form (MRF) was used to obtain anxiety measures during performance.

RESULTS: Significant changes in self-reported anxiety were reported between the control and anxiety conditions. Student's t-test revealed that performance, as measured by distance from hole was not different in control (0.68±0.52 m) and anxiety conditions (0.56±0.33 m). Females, n=10, significantly worsened their performance under anxiety condition (1.02±0.45 m) compared to control (0.73±0.37 m). Movement analysis showed that swing tempo, represented as a ratio of backswing to downswing time increased significantly ($p<0.05$), from 0.57 to 0.65 from control to anxious conditions respectively. Total swing time increased by an average 0.16 s for anxious putts and left wrist angle was also more open at impact by 0.97 degrees.

DISCUSSION: Apparent reported anxiety did not affect overall putting performance. Results are supportive of suggestions in the literature that individuals may increase mental effort on the task to compensate for the negative influence of anxiety on performance (Wilson *et al.*, 2007). Changes in temporal aspects of the putt seemed to compensate for any movement variability which increased anxiety may have induced.

CONCLUSION: Results show anxiety did not cause significant change in putting performance overall.

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